USAF COUNTERPROLIFERATION CENTER

# CPC OUTREACH JOURNAL

***Maxwell AFB, Alabama***

**Issue No. 398, 4 January 2005**

## Articles & Other Documents:



---

*Welcome to the CPC Outreach Journal. As part of USAF Counterproliferation Center's mission to counter weapons of mass destruction through education and research, we're providing our government and civilian community a source for timely counterproliferation information. This information includes articles, papers and other documents addressing issues pertinent to US military response options for dealing with nuclear, biological and chemical threats and attacks. It's our hope this information resource will help enhance your counterproliferation issue awareness.*
*Established in 1998, the USAF/CPC provides education and research to present and future leaders of the Air Force, as well as to members of other branches of the armed services and Department of Defense. Our purpose is to help those agencies better prepare to counter the threat from weapons of mass destruction. Please feel free to visit our web site at* www.au.af.mil/au/awc/awcgate/awc-cps.htm *for in-depth information and specific points of contact. Please direct any questions or comments on CPC Outreach Journal Jo Ann Eddy, CPC Outreach Editor, at (334) 953-7538 or DSN 493-7538. To subscribe, change e-mail address, or unsubscribe to this journal or to request inclusion on the mailing list for CPC publications, please contact Mrs. Eddy.*


Washington Post
December 29, 2004
Pg. 1

# Nuclear Capabilities May Elude Terrorists, Experts Say

By Dafna Linzer, Washington Post Staff Writer

Of all the clues that Osama bin Laden is after a nuclear weapon, perhaps the most significant came in intelligence reports indicating that he received fresh approval last year from a Saudi cleric for the use of a doomsday bomb against the United States.

For bin Laden, the religious ruling was a milestone in a long quest for an atomic weapon. For U.S. officials and others, it was a frightening reminder of what many consider the ultimate mass-casualty threat posed by modern terrorists. Even a small nuclear weapon detonated in a major American population center would be among history's most lethal acts of war, potentially rivaling the atomic destruction of Hiroshima and Nagasaki.

Despite the obvious gravity of the threat, however, counterterrorism and nuclear experts in and out of government say they consider the danger more distant than immediate.

They point to enormous technical and logistical obstacles confronting would-be nuclear terrorists, and to the fact that neither al Qaeda nor any other group has come close to demonstrating the means to overcome them.

So difficult are the challenges that senior officials on President Bush's national security team believe al Qaeda has shifted its attention to other efforts, at least for now.

"I would say that from the perspective of terrorism, the overwhelming bulk of the evidence we have is that their efforts are focused on biological and chemical" weapons, said John R. Bolton, undersecretary of state for arms control and international security. "Not to say there aren't any dealings with radiological materials, but the technology for bio and chem is comparatively so much easier that that's where their efforts are concentrating."

Still, the sheer magnitude of the danger posed by a nuclear weapon in terrorist hands -- and classified intelligence assessments that deem such a scenario plausible -- has spurred intelligence and military operations to combat a threat once dismissed as all but nonexistent. The effort includes billions of dollars spent on attempts to secure borders, retrain weapons scientists in other countries and lock up dangerous materials and stockpiles.

"The thing to keep in mind is that while it is extremely difficult, we have highly motivated and intelligent people who would like to do it," said Daniel Benjamin, a former National Security Council staff member and senior fellow at the Center for Strategic and International Studies. Each type of weapon of mass destruction -- nuclear, biological and chemical -- presents special challenges for the groups seeking to acquire them, but also opportunities that can be exploited by people determined to unleash their awesome destructive powers. This is the first of three articles aimed at exploring those risks and challenges.

**Difficult Course**

Without sophisticated laboratories, expensive technology and years of scientific experience, al Qaeda has two primary options for getting a bomb, experts say, both of which rely on theft -- either of an existing weapon or one of its key ingredients, plutonium or highly enriched uranium.

Nuclear scientists tend to believe the most plausible route for terrorists would be to build a crude device using stolen uranium from the former Soviet Union. Counterterrorism officials think bin Laden would prefer to buy a ready-made weapon stolen in Russia or Pakistan, and to obtain inside help in detonating it.

Last month, Michael Scheuer, who ran the CIA's bin Laden unit, first disclosed in an interview on CBS's "60 Minutes" that bin Laden's nuclear efforts had been blessed by the Saudi cleric in May 2003, a statement other sources later corroborated. As early as 1998, bin Laden had publicly labeled acquisition of nuclear or chemical weapons a "religious duty," and U.S. officials had reports around that time that al Qaeda leaders were discussing attacks they likened to the one on Hiroshima.

A week after his CBS appearance, Scheuer said at breakfast with reporters in Washington that he believed al Qaeda would probably seek to buy a nuclear device from Russian gangsters, rather than build its own.

There were as many as a dozen types of nuclear weapons in the hands of the Soviet Union at the end of the Cold War, but Russian officials have said that several kinds have since been destroyed and that the country has secured the remainder of its arsenal. The nature and scope of nuclear caches are among the most tightly held national security secrets in Russia and Pakistan.

It is unclear how quickly either country could detect a theft, but experts said it would be very difficult for terrorists to figure out on their own how to work a Russian or Pakistani bomb.

Newer Russian weapons, for example, are equipped with heat- and time-sensitive locking systems, known as permissive action links, that experts say would be extremely difficult to defeat without help from insiders.

"You'd have to run it through a specific sequence of events, including changes in temperature, pressure and environmental conditions before the weapon would allow itself to be armed, for the fuses to fall into place and then for it to allow itself to be fired," said Charles D. Ferguson, science and technology fellow at the Council on Foreign Relations. "You don't get it off the shelf, enter a code and have it go off."

The strategy would require help from facility guards, employees with knowledge of the security and arming features of the weapons, not to mention access to a launching system.

Older Russian nuclear weapons have simpler protection mechanisms and could be easier to obtain on the black market. But nuclear experts said even the simplest device has some security features that would have to be defeated before it could be used.

"There is a whole generation of weapons designed for artillery shells, manufactured in the 1950s, that aren't going to have sophisticated locking devices," said Laura Holgate, who ran nonproliferation programs at the Pentagon and the Energy Department from 1995 to 2001. "But it is a tougher task to take a weapon created by a country, even the 1950s version, a tougher job for a group of even highly qualified Chechen terrorists to make it go boom."

Transporting a weapon out of Russia would provide another formidable obstacle for terrorists.

Most of the ready-made bombs that could be stolen would be those made with plutonium, which emits far higher levels of radiation and is therefore more easily detected by passive sensors at ports than is highly enriched uranium, or HEU.

"I wouldn't rule out plutonium altogether, but if one were a terrorist bent upon demonstrating a nuclear explosion, the HEU route is technically much easier," said William C. Potter, director of the Center for Nonproliferation Studies at the Monterey Institute of International Studies in California.

**Building a Bomb**

Such difficulties have led some nuclear experts to believe bin Laden would be more likely to try to build an improvised nuclear weapon using a combination of uranium and conventional explosives. That design, known as a gun-type device, was used in the atomic bomb over Hiroshima.

While the technology is relatively simple and has been described in dozens of published scientific studies and policy journals, the path to development is filled with technological and logistical challenges -- the most significant of which is obtaining at least 50 kilograms of bomb-grade uranium. That amount would yield a slightly smaller device than "Little Boy," the code name for the Hiroshima bomb, but would be enough to obliterate any life or structure within a half-mile radius of the blast zone.

"If they got less material than that, it would be really dicey that they could build such a bomb," said Ferguson, at the Council on Foreign Relations.

According to a database maintained by the United Nations' International Atomic Energy Agency, there have been 10 known incidents of HEU theft in the past 10 years, each involving a few grams or less. Added up, the stolen goods total less than eight kilograms and could not be easily combined because of varying levels of enrichment. Most important, the thieves -- none of whom was connected to al Qaeda -- had no buyers lined up, and nearly all were caught while trying to peddle their acquisitions.

"Making the connection between buyer and seller has proved to be one of the most substantial hurdles for terrorists," said Matthew Bunn, a senior researcher at Harvard University's Project on Managing the Atom. Of the few known attempts by al Qaeda to obtain HEU, each allegedly stumbled because there was either no seller or the material on offer was fake. "Each time they tried, they got scammed," said Bruce Hoffman, a counterterrorism expert at the Rand Corporation who has tracked al Qaeda for years.

A September report on terrorism by the Congressional Research Service warned that terrorists could "obtain HEU from the more than 130 research reactors worldwide that use HEU as fuel." The report noted that the nations of "greatest concern as potential sources of weapons or fissile material are widely thought to be Russia and Pakistan." The largest stocks outside the United States are in Russia and around the former Soviet Union, some in facilities with notoriously weak security and safety procedures.

"Once you have the fissile material, it's a matter of basic chemistry, basic machinery and a truck," said Holgate, now a vice president at the nonprofit Nuclear Threat Initiative. "You have to have some technical capability, but once you have those skills, it's certainly within the grasp of the kind of sophisticated, planning-capable terror organizations out there."

Even so, there are a great many steps between obtaining the material and setting off an explosion. That may account for why such an attack has not materialized, despite intelligence warnings.

The uranium would have to be smuggled out of the facility and then transferred, possibly across several borders, seaports and airports, to a location where the device could be assembled. As described in unclassified literature, the gun-type bomb works when one mass of uranium is shot into another inside a tube. Such a device would be small enough to hide in a corner of a shipping container, but that would mean getting it to a port, onto a container and probably bribing a shipper or cargo crew to transport it.

An oil shipment would be optimal for a ready-made device, according to the congressional report, because the "size of the supertanker and thickness of the steel, especially with the use of double hulls," renders some detection equipment unusable.

But HEU emits low levels of radioactivity anyway, and that could be masked with lead shielding. A primitive device could be assembled in a small garage using machine tools readily available at an auto shop and concealed in a lead-plated delivery truck about the size of a delivery van, experts said.

It is also unclear how a terrorist group would know if its weapons development effort was on the right track. Nations with nuclear bombs conduct tests, including explosions that can be detected by scientists and governments. Bunn, who has published two studies on nuclear terrorism, said terrorists would not necessarily need to conduct such tests, but doing without them would increase chances that human error would foil plans or delay progress.

The most elaborate known effort by a terrorist group to develop a nuclear program was undertaken by the Japanese cult Aum Shinrikyo, which instead of stealing enriched uranium planned to mine and enrich the material itself. Members of Aum Shinrikyo, intent on world destruction when it began its 1993 quest for a nuclear weapon, had all the means to pull it off, on paper at least: money, expertise, a remote haven in which to work, and most important, a private uranium mine.

But the group made dozens of mistakes in judgment, planning and execution. It shifted course, launching its chemical attack on the Tokyo subway in 1995.

"There are valuable lessons in Aum's experience, and there are false lessons," said Benjamin, co-author of "The Age of Sacred Terror." "The valuable lesson is that WMD terrorism is hard to do," he said. "But given that they didn't try what would be the most efficient way to put together a nuclear bomb, we shouldn't overrate their example as a reason why it's not going to happen."

Al Qaeda has been on the run since the United States deprived it of a haven in Afghanistan, making it more difficult for the group to operate on such an ambitious scale.

"At this moment, they are less capable of carrying out an operation like this because it would require so many different experts and operatives," Benjamin said. "But even a depleted group could do it if they got the right breaks."
http://www.washingtonpost.com/wp-dyn/articles/A32285-2004Dec28.html

(Return to Articles and Documents List)

Washington Post
December 29, 2004
Pg. 6

# Attack With Dirty Bomb More Likely, Officials Say

By Dafna Linzer, Washington Post Staff Writer

Often called a weapon of mass disruption, not destruction, a dirty bomb -- which uses conventional explosives to spread radioactive material -- causes far fewer casualties than a nuclear explosion. But because such devices are easier to assemble and the ingredients are readily available, government officials and terrorism experts consider a dirty-bomb attack more likely than a terrorist nuclear strike.

"You would need a stick of dynamite and the kind of radioactive source you find in a common smoke detector," said Charles D. Ferguson, co-author of "The Four Faces of Nuclear Terrorism."

There have been several alleged attempts to carry out a dirty-bomb attack.

In June 2002, U.S. authorities arrested Jose Padilla, a former gang member from Brooklyn, on charges of plotting a dirty-bomb strike in the United States on behalf of al Qaeda. Last December, the Department of Energy dispatched scores of nuclear scientists with sophisticated detection equipment to scour several major cities for radiological bombs. In September, British police arrested four men suspected of plotting to set off a dirty bomb in London.

"Any person who could build a car bomb or suicide bomb, like the ones we've seen in Iraq or other places, could couple that to radioactive materials and that is it," Ferguson said.

Such an attack can be carried out by detonating a small conventional bomb that spews the radioactive material and radiation across a small area.

John R. Bolton, undersecretary of state for arms control, said in an interview that the availability of radiological sources presents a significant risk, and that both the United States and the rest of the world "have not paid enough attention to this question. Everybody needs to do more work on that."

Americium, which is found in smoke detectors, is one of eight types of radioactive sources suitable for bombs. Four sources cause external injuries to skin and eyes, and three others, plus americium, can cause extensive internal damage, as well.

Terrorists would need less than a gram of any one of the sources to build a dirty bomb, but the trace amounts found in everyday products are so minuscule that plotters would need more than 1 million smoke detectors to get enough americium for a weapon. Even if a terrorist was able to assemble, plant and detonate a dirty bomb, officials and experts agree the damage would be more psychological than lethal.

"The real effects would be economic shutdown due to contamination, as well as the social and psychological fear created," Ferguson said.
http://www.washingtonpost.com/wp-dyn/articles/A32310-2004Dec28.html

(Return to Articles and Documents List)

Los Angeles Times
December 29, 2004

# Talk Swirling Of North Korean Regime Collapse

***Since Kim ordered his portraits removed from buildings in the capital, activists flooded the Net with unsubstantiated rumors of instability.***

By Barbara Demick, Times Staff Writer

SEOUL — How long can the North Korean regime survive?

A decade ago, it was taken as a matter of faith that it soon would be relegated to the same historical dustbin as the Soviet Union. But Kim Jong Il defied predictions of his political demise and embarrassed pundits stopped even broaching the topic of the regime's life expectancy.

Now, the subject is back on the table in a big way.

In South Korea, there are calls to update the government's classified contingency plan — code-named Chungmu 3300 after a 16th century military hero — to deal with a possible collapse of the North's regime. The leading

government think tank here is dusting off old social science models designed for Eastern Europe in an attempt to predict how much longer Kim can last.

The Japanese media, meanwhile, has been full of breathless rumors — most of which have proved untrue — of mass defections by the North Korean military and the circulation of anti-Kim brochures in the North.

"The idea that North Korea is about to collapse is back in fashion," said Jeung Young-Tai, a member of the team at the Seoul-based Korea Institute for National Unification studying the likelihood of collapse.

The latest wave of speculation was triggered by reports last month out of Pyongyang, North Korea's capital, that portraits of Kim had been removed from public buildings frequented by foreign diplomats. It later emerged that Kim had ordered the portraits removed to soften the cult of personality that has invited ridicule and unwelcome comparisons to former Iraqi President Saddam Hussein.

But the speculation may have less to do with political forces inside North Korea than outside.

In particular, President Bush's reelection has emboldened critics of the North Korean regime in the United States and in Asia who want Kim ousted. The North Korean Human Rights Act, passed in October, allocates up to $24 million to promote better conditions for North Koreans, and has revitalized an activist movement made up largely of Christian missionaries.

The activists have flooded journalists with e-mail and the Internet with unsubstantiated rumors about instability inside North Korea.

"We are seeing a lot of fabricated tales going around lately," said Woo Jung Chang, an editor of the Chosun Monthly, an influential Seoul-based magazine.

"There is a lot of wishful thinking when it comes to predictions of North Korea's collapse," agreed Nicholas Eberstadt, a North Korea expert with the American Enterprise Institute, a conservative think tank in Washington.

The subject of North Korea's stability is most sensitive in South Korea, where polls show that people are less fearful of a communist invasion than they are of a messy collapse that could send streams of hungry refugees across the border.

The South Korean government is so touchy about the issue that it recently threatened to prosecute an opposition assemblyman who publicly discussed the contingency plan for a North Korean collapse.

The strategy, which dates to the 1960s but has been revised, calls for the establishment of an interim civilian government to fill the vacuum that would be left by the collapse of the Pyongyang government and for emergency refugee shelters to be set up near the demilitarized zone separating the two nations.

"This is a realistic scenario and something we need to plan for and refine in detail…. Instead, we're not even allowed to talk about it," said the assemblyman, Chung Moon Hun.

At least officially, the South Korean government insists that such plans are unnecessary.

"It seems there's almost no possibility North Korea will collapse," President Roh Moo-hyun said in a sharply worded statement this month.

Like his Nobel laureate predecessor, Kim Dae Jung, Roh has pursued a number of projects designed to bolster the North Korean economy. This month, the two Koreas held a ceremony to celebrate the start of production at an industrial park in Kaesong, just north of the DMZ.

But Roh's stance is drawing fire from conservatives who accuse him of propping up a morally and economically bankrupt regime.

Michael Horowitz, a former Reagan administration official who has been one of the most articulate U.S. advocates of toppling Kim, shocked the South Korean media during a recent visit here when he accused Roh of "making love to a corpse."

Horowitz was recently on a speaking tour, trying to convince analysts and policy-makers that Kim's regime was doomed. "At this stage, the only people who believe that Kim Jong Il can survive are those in the Roh Moo-hyun government and in the State Department," Horowitz said.

In fact, many North Korea experts appear to be genuinely confused about what is happening in the country.

There are certainly signs that something is amiss in the secretive regime. Kim purged his powerful brother-in-law from the ruling Workers' Party this year in what was believed to be a struggle over succession. And a decision in the summer to place new restrictions on foreign aid agencies and crack down on the use of cellphones also might indicate a feeling of insecurity on the part of the government.

But North Korea's economy appears to be in better shape than at any time since the collapse of the Soviet Union.

U.S. Assistant Secretary of State James A. Kelly said in an interview published this month in the Korea Times that Kim was a "rational" leader who could transform his country if he chose to.

Eberstadt, among the most influential North Korea analysts, was once so well-known for his predictions of the North's demise that he came to be referred to as head of the "collapsist" school. But in what was a bit of mea culpa, he recently published an article in the academic journal Policy Review titled "The Persistence of North Korea" in

which he suggests that an infusion of aid from the United States, China and South Korea probably averted a collapse of the communist state in the mid-1990s.
Today, he shies away from forecasts about the regime's life expectancy.
"Outsiders have always been bad at predicting change in communist systems, which are preternaturally secretive and deceptive," Eberstadt said. "I can look at the economics, but I have no way of knowing if one day Kim Jong Il will decide to take up horseback riding, fall off and crack his head."
Scholars at the Korea Institute for National Unification also acknowledge some uncertainty. In 1996, two years after the death of Kim's father, Kim Il Sung, and at the height of a famine that killed 10% of the population, the institute applied a model that had been devised by former U.S. national security advisor Zbigniew Brzezinski for Eastern Europe. Using that methodology, the institute found that North Korea should have collapsed in 1992 — four years earlier.
Since then, the institute has revised the model, adding factors that apply specifically to North Korea, such as the country's lack of democratic tradition and the Confucian culture, which stresses obedience and hierarchy. They plan to run the model again next month.
Institute researcher Jeung, who was one of the team on the 1996 study and is working on it again, says the key variable is how the international community deals with North Korea's continued pursuit of nuclear weapons.
"It might all come down to the Bush administration," Jeung said. "If they decide to put a stranglehold on North Korea, that might well be the end."
Scott Snyder, a Korea expert with the Asian Foundation who has followed the debate for years, notes that prospects for collapse always seem to look greater the farther away one is from North Korea.
"In Washington, some people seem to wake every morning and check whether the regime has collapsed overnight. But there is little of that sense in Seoul and even less in Pyongyang," Snyder said.
"I suppose, though, if people keep on predicting that the North is about to collapse, well, then one of these days they'll probably be right."
http://www.latimes.com/news/nationworld/world/la-fg-collapse29dec29,1,6590699.story?coll=la-headlines-world

(Return to Articles and Documents List)

Washington Post
December 30, 2004
Pg. 1

# Technical Hurdles Separate Terrorists From Biowarfare

By John Mintz, Washington Post Staff Writer
Hoping to hasten the doomsday their leader foretold, scientists who were members of Japan's Aum Shinrikyo cult brewed batches of anthrax in the early 1990s and released it from an office building and out the back of trucks upwind of the Imperial Palace.
But the wet mixture kept clogging the sprayers the Aum Shinrikyo scientists had rigged up, and, unbeknown to them, the strains of anthrax they had ordered from a commercial firm posed no danger to anyone. Frustrated by their failure at biowarfare, they turned to a less arduous method of mass killing -- chemical attack -- and in 1995 killed 12 Tokyo subway riders by releasing sarin gas in the tunnels.
The cult's experiences demonstrate just a few of the myriad technical obstacles that terrorists who might try to manufacture biological weapons could face, problems that would confound even skilled scientists who tried to help them, biological warfare experts say.
Locating virulent anthrax specimens with which to brew an attack-sized batch would be difficult given the medical community's caution about suspicious buyers. Smallpox could be next to impossible to obtain because it is thought to exist in only two secure sites, in Russia and in the United States.
Creating aerosolized microbes also requires expertise in many arcane scientific disciplines, such as culturing and propagating germs that retain their virulence and "weaponizing" them so they float like a gas and enter the lungs easily.
But specialists also say it is all but inevitable that al Qaeda or another terrorist group will gain the expertise to launch small-scale biological attacks and eventually inflict mass casualties. Information on the mechanics of creating bioweapons is easily accessible on the Internet and in technical manuals, and the equipment to do the job is readily found. Many brew pubs, for example, have fermenters that can cook up deadly germs.
Advances in bioscience, and the rapid dissemination of this knowledge worldwide, are making it easier for even undergraduates to create dangerous pathogens. Creating microbe weapons is more challenging than producing the simplest implements of terrorism -- conventional explosives or chemical weapons -- but much less difficult than the most technically daunting -- nuclear weapons -- experts say.

Richard Danzig, a former Navy secretary and now a biowarfare consultant to the Pentagon, said that while there are 1,000 to 10,000 "weaponeers" worldwide with experience working on biological arms, there are more than 1 million and perhaps many millions of "broadly skilled" scientists who, while lacking training in that narrow field, could construct bioweapons.

"It seems likely that, over a period between a few months and a few years, broadly skilled individuals equipped with modest laboratory equipment can develop biological weapons," Danzig said. "Only a thin wall of terrorist ignorance and inexperience now protects us."

Some agents are simpler than others to weaponize. Toxins such as botulinum, which is not contagious and unlikely to cause mass casualties, are the easiest to turn into weapons, particularly for a food-borne or water-borne attack. Bacterial agents such as anthrax, which also is not contagious, are more difficult to manufacture. Viruses such as smallpox, which is contagious and could kill millions, are tougher still.

The most challenging are some of the new 21st-century bioweapons that scientists contemplate being created in the future -- but experts believe even these compounds are fast becoming easier to produce.

In 2002, a panel of biowarfare experts concluded in a report co-published by the National Defense University (NDU) that while terrorists could mount some small-scale bioattacks, larger assaults would require them to overcome many technical hurdles. Some key biotechnologies would be achievable only three to four years from then, the panel found.

"When we sent out the report for review to [hands-on] bench scientists, we got the response, 'What do you mean we can't do this? We're doing it now,' " said Raymond Zilinskas, a co-author of the report who heads biowarfare studies at the Center for Nonproliferation Studies, a California think tank. "It shows how fast the field is moving."

Those skeptical of the prospect of large-scale bioattacks cite the tiny number of biological strikes in recent decades. Members of the Rajneeshee cult sickened 750 people in 1984 when they contaminated salad bars in 10 Oregon restaurants with salmonella. Among the few others were the 2001 anthrax attacks through the U.S. mail that killed five people.

One reason for the small number of attacks is that nearly every aspect of a bioterrorist's job is difficult. The best chance of acquiring the anthrax bacterium, Bacillus anthracis, is either from commercial culture collections in countries with lax security controls, or by digging in soil where livestock recently died of the disease -- a tactic Aum Shinrikyo tried unsuccessfully in the Australian Outback.

Once virulent stocks of anthrax have been cultured, it is no trivial task to propagate pathogens with the required attributes for an aerosolized weapon: the hardiness to survive in an enclosed container and upon release into the atmosphere, the ability to lodge in the lungs, and the toxicity to kill. The particles' size is crucial: If they are too big, they fall to the ground, and if they are too small, they are exhaled from the body. If they are improperly made, static electricity can cause them to clump.

Making a bug that defeats antibiotics, a desired goal for any bioweaponeer, is relatively simple but can require laborious trial and error, because conferring antibiotic resistance often reduces a bioweapon's killing power. Field-testing germ weapons is necessary even for experienced weapons makers, and that is likely to require open spaces where animals or even people can be experimentally infected.

Each bioagent demands specific weather conditions and requires unforgiving specifications for the spraying device employed. "Dry" anthrax is harder to make -- it requires special equipment, and scientists must perform the dangerous job of milling particles to the right size. "Wet" anthrax is easier to produce but not as easily dispersed.

Experts agree that anthrax is the potential mass-casualty agent most accessible to terrorists. The anthrax letter sent in 2001 to then-Senate Minority Leader Thomas A. Daschle (D-S.D.) contained one gram of anthrax, or 1 trillion spores.

In a 2003 report for the Pentagon, Danzig estimated that if terrorists released a much larger amount of skillfully made anthrax particles under optimal weather conditions in a large city, 200,000 people in an area 40 miles downwind of the release would be infected, and, if untreated, 180,000 of them would die. Smaller numbers would die as far as 120 miles away.

Government officials would probably realize that an attack had occurred a day or two later, when victims began to show up in emergency rooms with flulike symptoms. Guessing the geographical spread of the attack, officials would then order emergency distribution of ciprofloxacin or other antibiotics, which would probably save many lives -- although experts agree the public health response would be likely to be chaotic and possibly ineffective.

For most experts, the most frightening anthrax scenario is an antibiotic-resistant bug, which many say is not far-fetched. It is "one of the big things we're worried about," Philip K. Russell, a top bioterrorism adviser in the Department of Health and Human Services, said in an August interview in the trade journal Biosecurity. "It's my view that we have about three or four years to come up with a solution to multidrug-resistant anthrax. . . . We haven't taken anthrax off the table as a threat that can create a very big disaster."

Government officials also said they accept a Danzig theory that terrorists probably would launch bioattacks against various cities simultaneously or sequentially, using a tactic he calls "reload." Danzig said it would be designed to overwhelm government responses and undermine public confidence in officials.
"Our national power to manage the consequences of repeated biological attacks could be exhausted while the terrorist ability to reload remains intact," he wrote in the Pentagon report.
The 2002 NDU study -- led by Zilinskas and Seth Carus, a biowarfare expert at the university -- concluded that at that time, large-scale bioweapons were less likely to be fashioned by terrorists than by nations such as Iran, or by disgruntled bioscientists. The report also detailed the skill levels necessary to accomplish various biowarfare-related tasks. A "junior scientist," for example, could use genetic engineering to weaponize both bacterial and viral pathogens.
Experts say that since then, the spread of knowledge and the increasing availability of sophisticated equipment have placed more and more complex tasks within the ability of less-skilled people. Some experts expressed concern about the easy availability of inexpensive biological "kits" from commercial catalogues that streamline cloning and other once-daunting tasks.
The Zilinskas-Carus report said it is "chancy" to estimate which weapons terrorists could make after 2005 because of scientists' increasing ability to synthesize and manipulate biological material such as DNA.
"Novel DNA sequences are being designed and inserted into living cells by undergraduates," said Roger Brent, a biowarfare expert who is president of the Molecular Sciences Institute, a leading research group in Berkeley, Calif.
Some scientists doubt terrorists will master genetically altered superbugs. But Brent and other experts raise the specter of terrorists' hiring scientists who can insert a toxin into, say, a bioengineered SARS virus, which would then be as contagious as severe acute respiratory syndrome and as fatal as the toxin inside it.
Last year, Brent told a study panel convened by the CIA that current biological capability resembles the capacity of computers in 1965, or English cotton mills in the 1800s -- technologies on the cusp of explosive growth. He said the day is coming when not only terrorists but "garage hackers" will be able to assemble bioweapons.
The CIA panel's late 2003 report, "The Darker Bioweapons Future," said that "the same science that may cure some of our worst diseases could be used to create the world's most frightening weapons. The know-how to develop some of these weapons already exists."
Even banned viruses such as smallpox might be employed one day by terrorists who sidestep the difficulty of obtaining them by synthesizing agents that resemble them, Brent told the panel. "Once synthesized," he said, they "can be grown in indefinite quantities."
"The Rubicon has already been crossed and the process of creating novel genetically engineered orthopoxviruses [diseases including smallpox] is irrevocable," Ken Alibek, a former Soviet bioscientist who defected to the United States, wrote recently in a scholarly journal. "It is just a matter of time before this knowledge will result in the creation of super-killer poxviruses." He added: "If a threat, no matter how small, of a smallpox attack exists, it must be addressed" by developing smallpox detection systems and medicines.
"The alternative," Alibek wrote, "is to remain as helpless as the millions of people who died of smallpox over previous centuries."
http://www.washingtonpost.com/wp-dyn/articles/A35011-2004Dec29.html

(Return to Articles and Documents List)

Washington Post

# IAEA Says Egypt Produced Nuclear Material

*By George Jahn*
The Associated Press
Tuesday, January 4, 2005; 2:05 PM
VIENNA, Austria -- The U.N. atomic watchdog agency has found evidence of secret nuclear experiments in Egypt that could be used in weapons programs, diplomats said Tuesday.
The diplomats told The Associated Press that most of the work was carried out in the 1980s and 1990s but said the International Atomic Energy Agency also was looking at evidence suggesting some work was performed as recently as a year ago.
Egypt's government rejected claims it is or has been pursuing a weapons program, saying its nuclear program is for peaceful purposes.
"A few months ago we denied these kinds of claims and we do so again," Egyptian government spokesman Magdy Rady said. "Nothing about our nuclear program is secret and there is nothing that is not known to the IAEA."
But one of the diplomats said the Egyptians "tried to produce various components of uranium" without declaring it to the IAEA, as they were bound to under the Nuclear Nonproliferation Treaty. The products included several

pounds of uranium metal and uranium tetrafluoride -- a precursor to uranium hexafluoride gas, the diplomat said on condition of anonymity.
Uranium metal can be processed into plutonium, while uranium hexafluoride can be enriched into weapons-grade uranium -- both for use in the core of nuclear warheads.
The diplomat said the Vienna-based IAEA had not yet drawn a conclusion about the scope and purpose of the experiments. But the work appeared to have been sporadic, involved small amounts of material and lacked a particular focus, the diplomat said.
That, he said, indicated that the work was not directly geared toward creating a full-scale program to make nuclear weapons.
Egypt has denied in the past it is trying to develop a nuclear weapons program.
The country appeared to turn away from the pursuit of such a program decades ago. The Soviet Union and China reportedly rebuffed its requests for nuclear arms in the 1960s, and by the 1970s, Egypt gave up the idea of building a plutonium production reactor and reprocessing plant.
Egypt runs small-scale nuclear programs for medical and research purposes, and Rady said the IAEA is monitoring that program.
"Nothing about our nuclear program is secret and there is nothing that is not known to the IAEA," he said. "We don't have a secret program for energy. All our program is known."
Plans were floated as recently as 2002 to build the country's first nuclear power reactor. But no construction date has been announced, and the pro-government Al-Ahram Weekly reported late last year that the plant site near the coastal town of Al-Dabaa might be sold to make way for tourism development.
Although Egypt signed the Nonproliferation Treaty, it has become in recent years one of the treaty's most vocal critics, mainly because of concerns about Israel's undeclared nuclear arsenal and more recent fears about Iran's nuclear agenda.
http://www.washingtonpost.com/wp-dyn/articles/A47408-2005Jan4.html

(Return to Articles and Documents List)